National Aeronautics and Space Administration

marshall update 2014

Together, we make **bold** things happen.

marshall

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Agenda

Welcome

Bobby Watkins – Director, Office of Strategic Analysis & Communications

Marshall Update Introduction

Patrick Scheuermann – Director, Marshall Space Flight Center

Marshall 2014 Accomplishments

Teresa Vanhooser – Deputy Director, Marshall Space Flight Center

Panel

Moderated by **Teresa Vanhooser** – Deputy Director, Marshall Space Flight Center

Todd May – Manager, Space Launch System Program Office

Daniel Schumacher – Manager, Science & Technology Office

Lisa Watson-Morgan – Manager, Chief Engineers Office

Rhega Gordon – Deputy Chief Financial Officer

Contractor Awards

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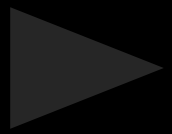
Bobby Watkins

Director, Office of Strategic Analysis and Communications



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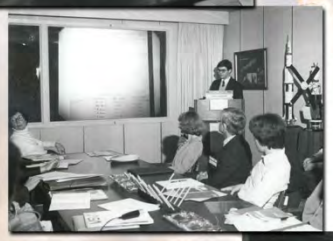
Patrick Scheuermann

Director, Marshall Space Flight Center

Standing on the shoulders of giants...
...delivering the next great ship.

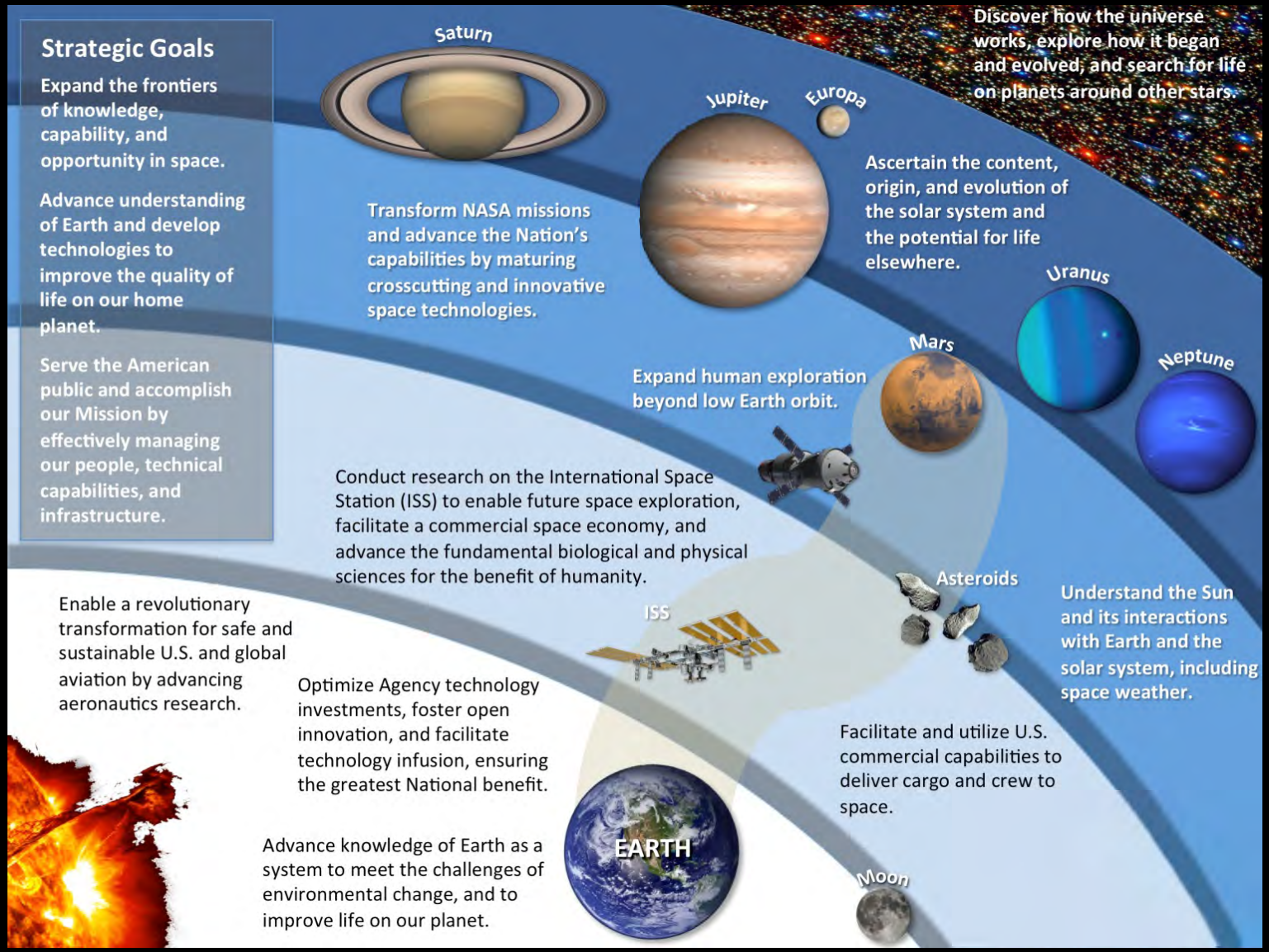
Apollo



Space Shuttle

SLS

NASA Strategic Goals



Updating Infrastructure for New Mission Needs

Providing a more efficient operation

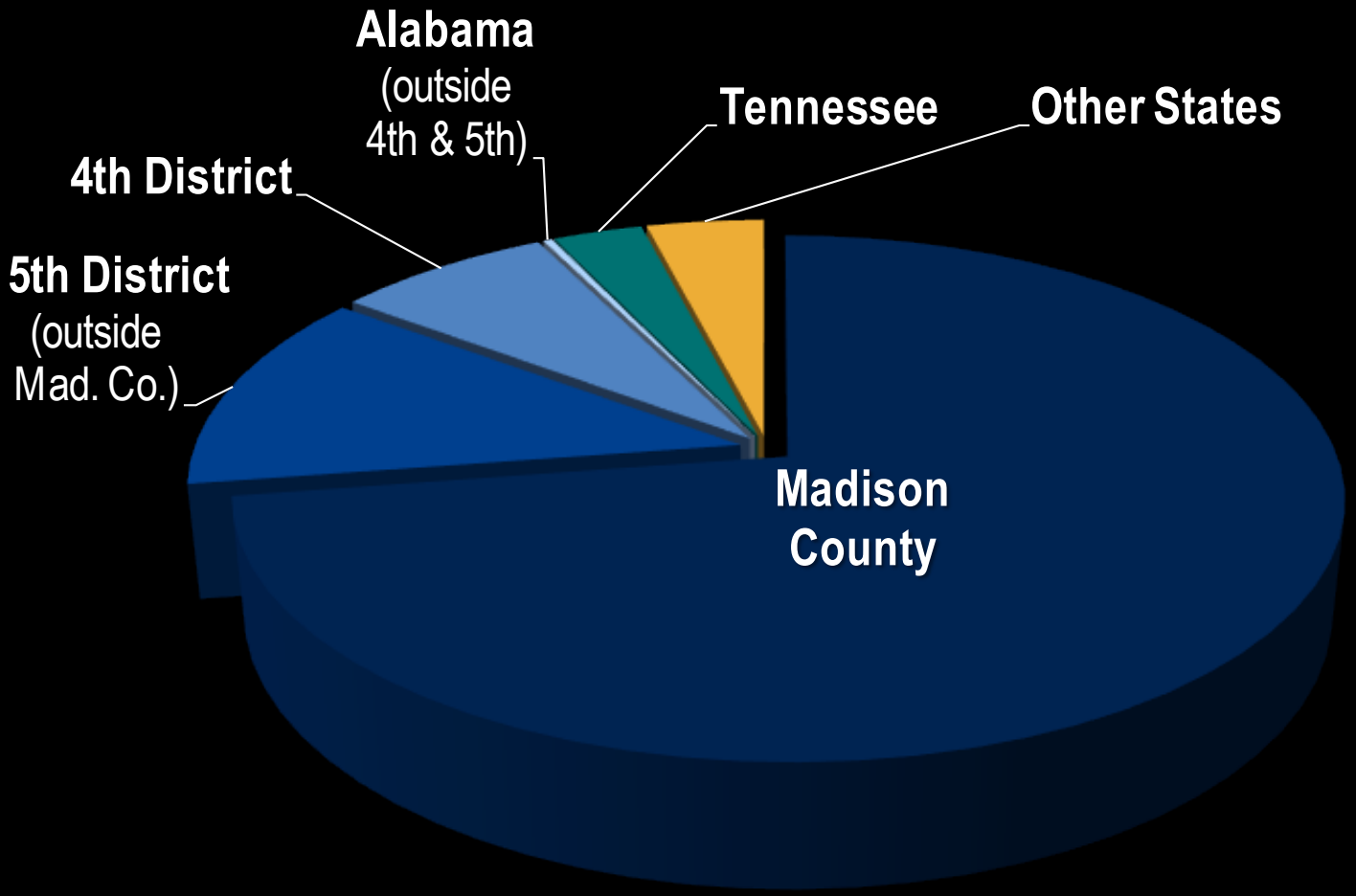
- 30% reduction in energy intensity by 2015
- 26% reduction in potable water use by 2020
- 15% sustainable buildings by 2015

4.5 million square feet
of space occupied
in Huntsville

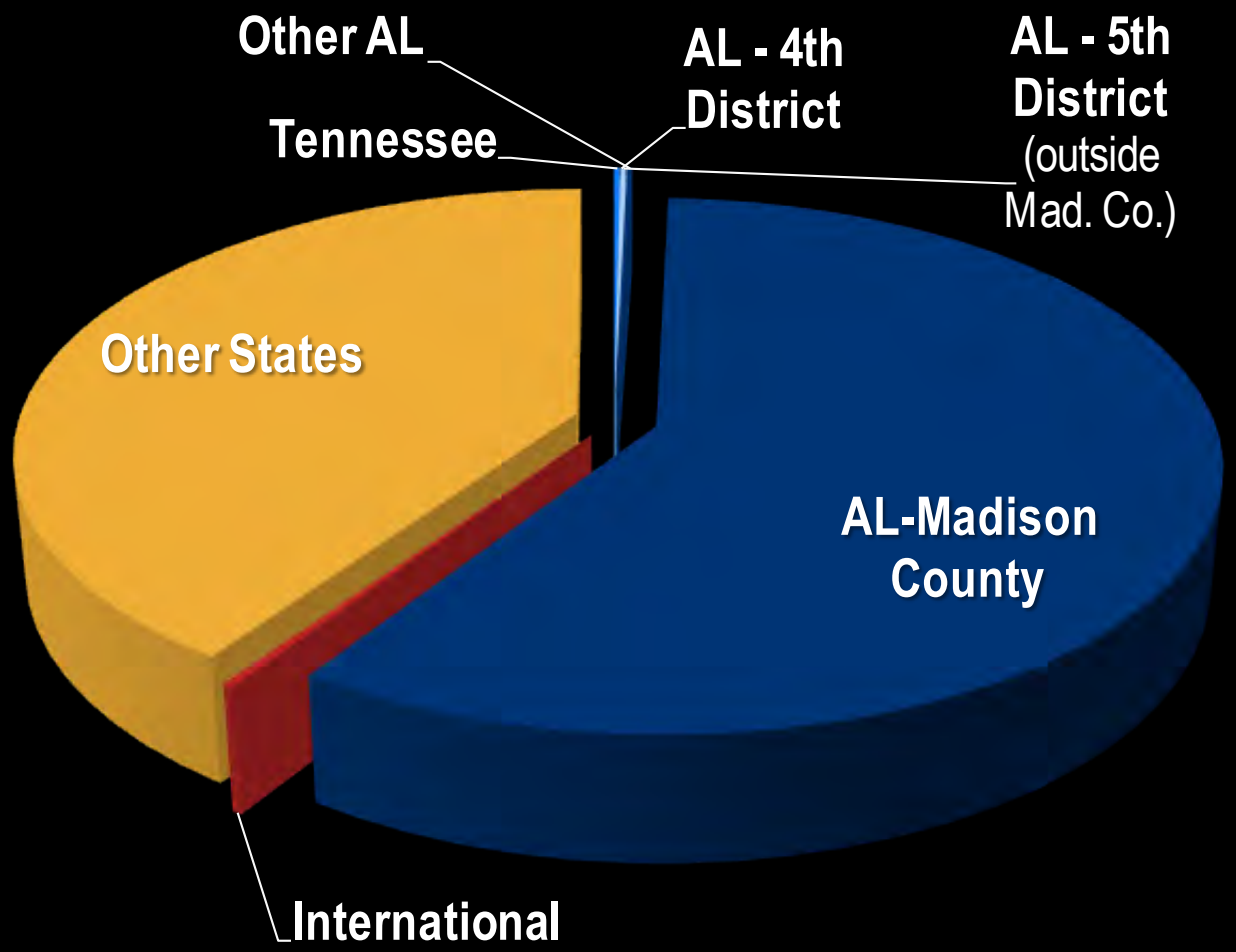
1,841 acres
on Redstone Arsenal

2.2 million square feet
of manufacturing space at
Michoud Assembly Facility

Marshall Employees and Associated Labor Income

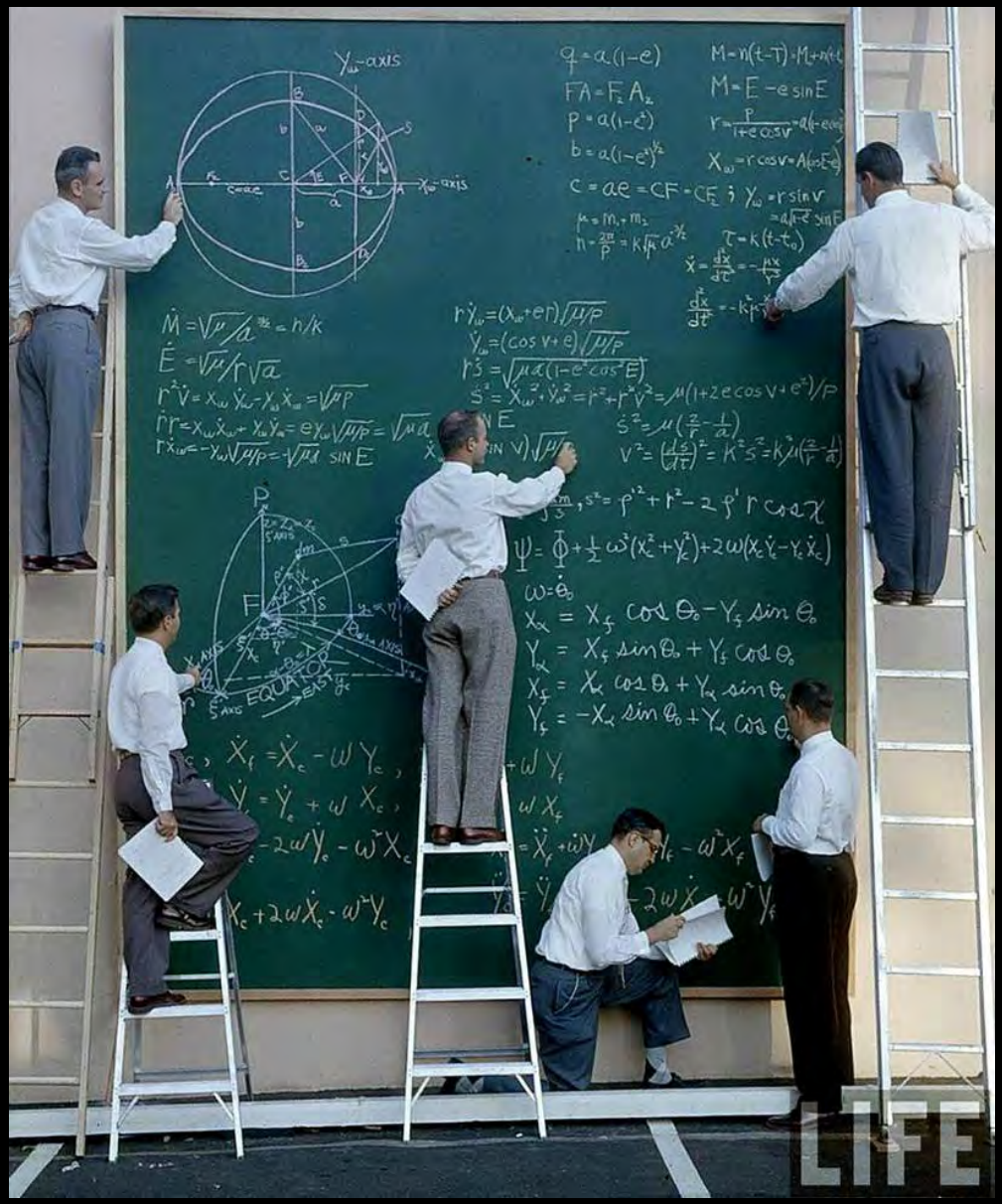


Marshall Procurement

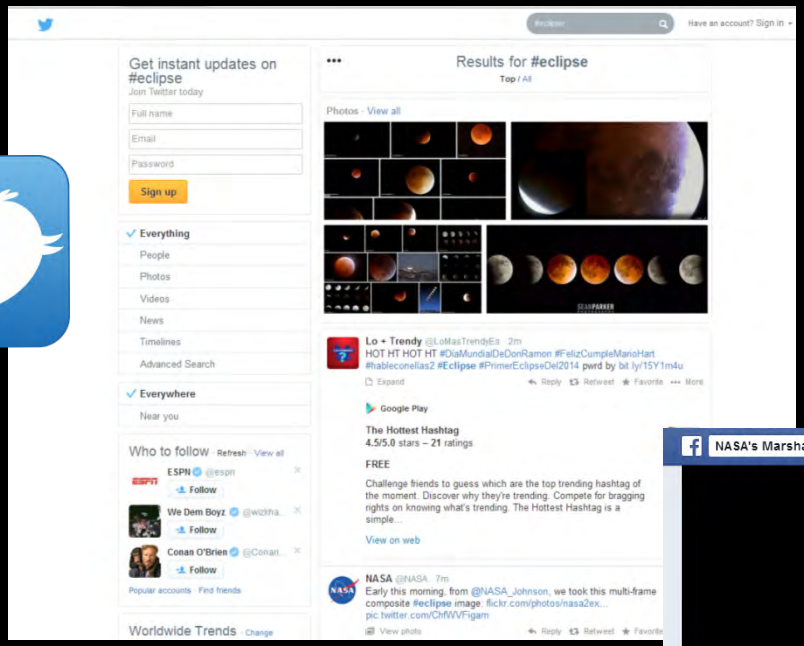


Administrator's Cup Presented to Marshall

Technology



Social Media Success



views

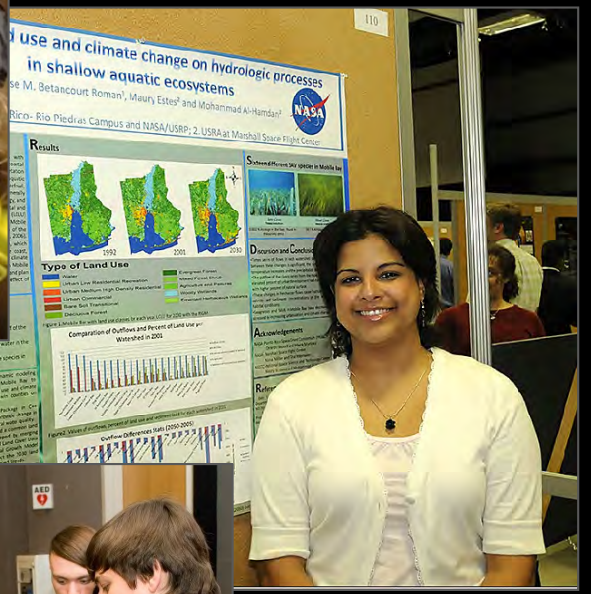
Ustream: **2.2 million**

Chat page: **1.4 million**

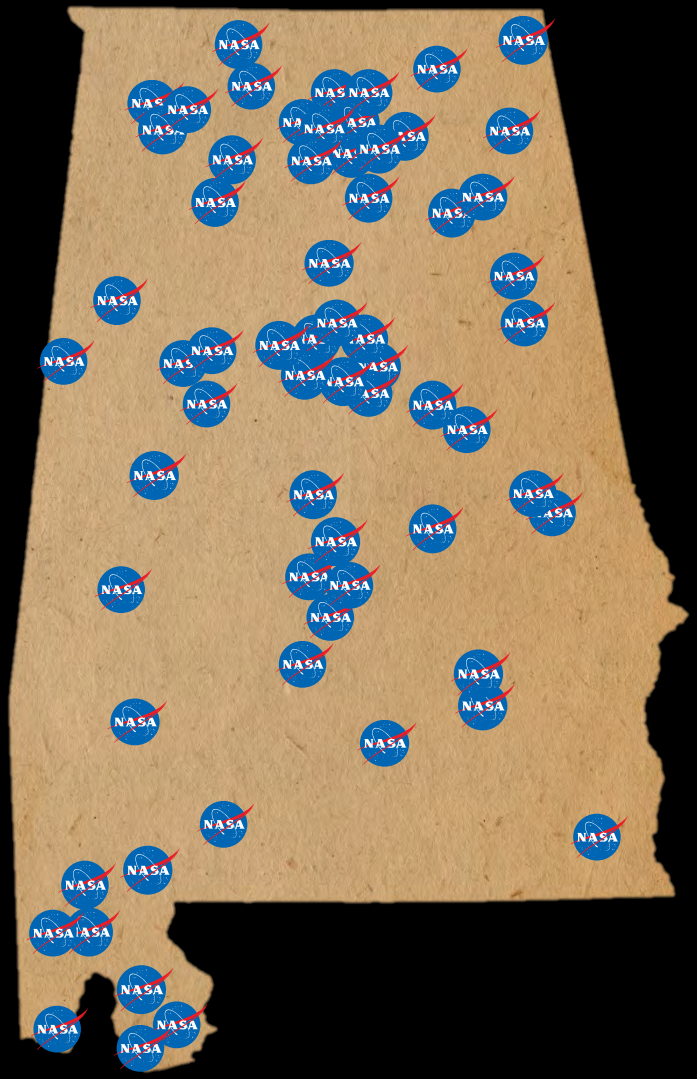
Flickr: **50,000**

April 14
Lunar Eclipse
Social Media Metrics

Workforce Development - STEM



Educational Outreach Across Alabama



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Teresa Vanhooser

Deputy Director, Marshall Space Flight Center

Marshall's Upgraded Payload Operations Integration Center Enhances Station Work

Marshall Celebrates International Space Station 15th Anniversary

Hot-Fire Tests Show 3-D Printed Rocket Parts Can Stand the Heat

Marshall Interns Take 'One Small Step' Toward Aerospace Careers

Marshall's Mighty Eagle Improves Autonomous Landing Software with Successful Flight

Marshall, Goddard Scientists Team for Dual-Purpose Science Balloon Mission

NASA 'House Teams' Ready for FIRST Robotics Competitions

Building 4220 Complete to Help Affordably Manage Our Facilities

Office of Chief Information Officer Positions
Agency as Leader in Integrated Business Systems

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Deputy Director, Marshall Space Flight Center

Todd May
Manager, Space Launch System Program Office

Daniel Schumacher
Manager, Science & Technology Office

Lisa Watson-Morgan
Manager, Chief Engineers Office

Rhega Gordon
Deputy Chief Financial Officer

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Todd May

Manager, Space Launch System Program Office

Space Launch System Recent Accomplishments

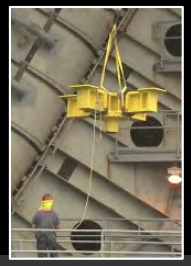
Launch Vehicle Stage Adapter: Contract awarded in February 2014.

MPCV-to-Stage Adapter: First flight hardware delivered to ULA for Exploration Flight Test-1 in Fall 2014.

Avionics: Flight software tested at Armstrong using F-18 in November 2013; avionics "first light" marked in January 2014.

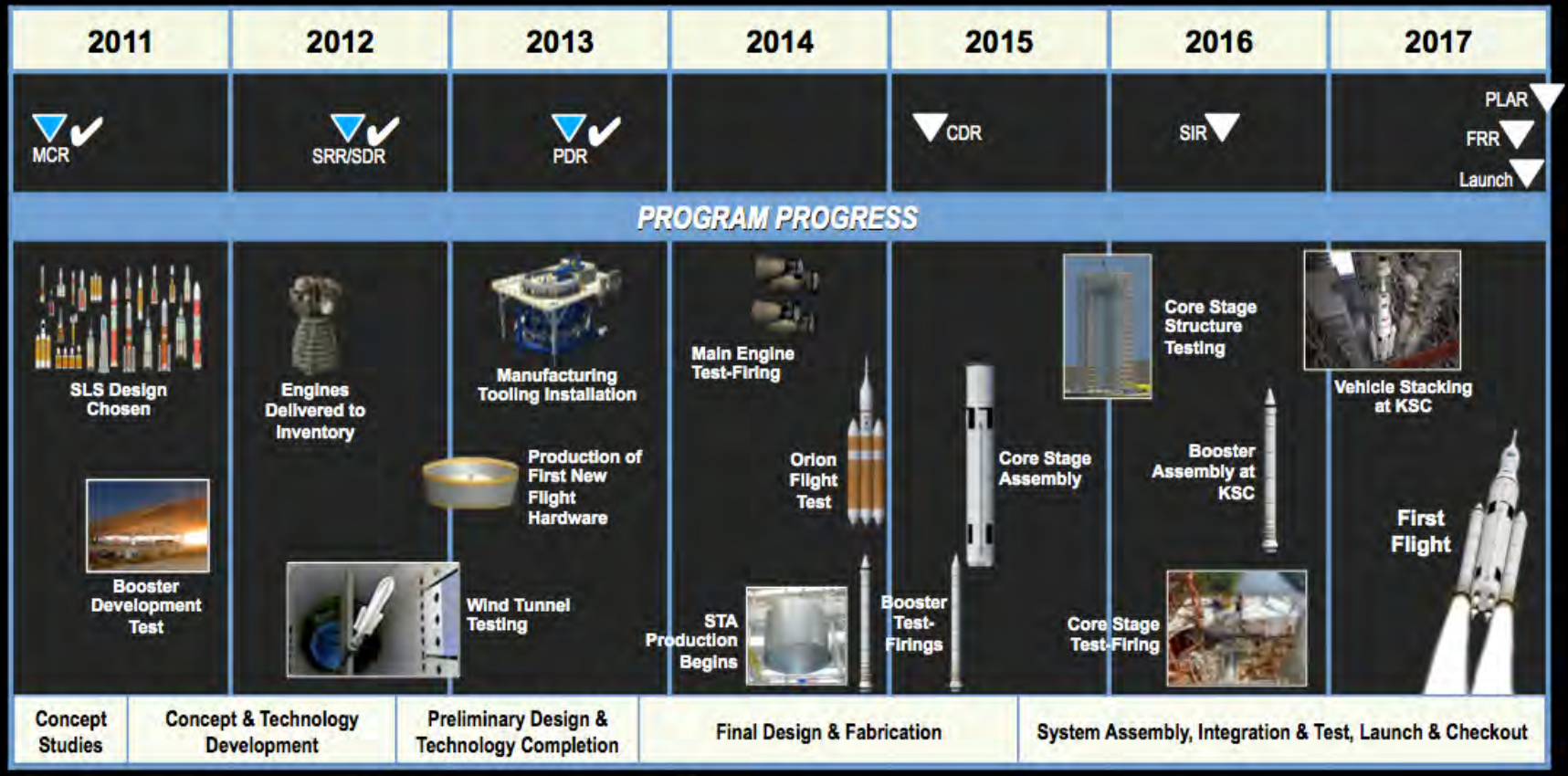
Core Stage: Initial confidence barrels and domes completed; MAF tooling installation to be completed in July 2014.

Boosters: Thrust Vector Control test conducted in October 2013; preparations underway for QM-1.



Engines: Thrust frame adapter fitted to A-1 stand at Stennis; RS-25 testing begins July 2014.

SLS Development Schedule



MCR: Mission Concept Review	CDR: Critical Design Review
SRR: System Requirements Review	SIR: System Integration Review
SDR: System Definition Review	FRR: Flight Readiness Review
PDR: Preliminary Design Review	PLAR: Post-Launch Asses. Review

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Daniel Schumacher

Manager, Science & Technology Office

JWST Completes Testing at MSFC

Scientific Research

Russian X-Ray Telescope Mission

ISS

ISERV Image

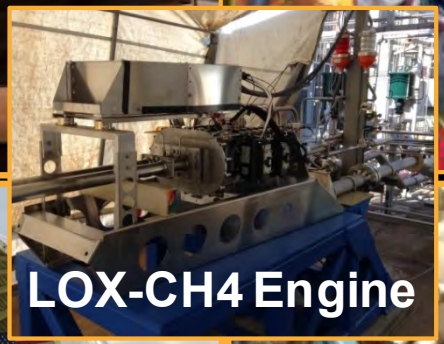
LIS Capability

Chandra

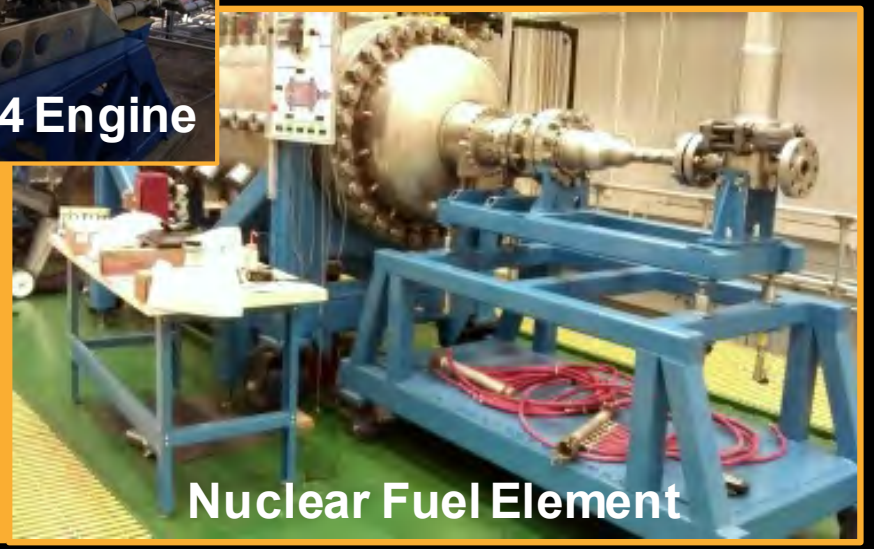
Technology Development

3D Print


Engineering Development Unit


LOX-CH4 Engine


5.5-m Composite Cryotank


Nuclear Fuel Element

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Lisa Watson-Morgan

Manager, Chief Engineers Office

Engineering at Marshall: How we work

Advanced Concepts

- Concept Definition, Integration, & Analysis
- Architecture Analysis
- Technology Assessments
- Feasibility Studies
- Concept Evaluation

Space Systems

- Instruments & Payloads
- Environmental Control & Life Support Systems
- Electronics
- Software
- Small Mechanical Systems
- Fabrication & Assembly Services

Spacecraft & Vehicle Systems

- Systems Engineering & Integration
- Structural Design and Analysis
- Loads & Dynamics
- Mechanisms
- Aero-sciences
- Thermal Design, Analysis, & Control
- Modeling & Simulation
- Guidance, Navigation, & Control
- Terrestrial & Space Environments

Propulsion Systems

- Propulsion Engineering
- Liquids & Solids
- Component Design and Development
- Fluid Systems Design & Analysis
- Computational Fluid Mechanics
- In-Space Propulsion
- Nuclear Propulsion

Mission Operations

- Ground Systems Research and Development
- Operation Concepts Analysis and Development
- Mission Operations Planning, Training and Execution
- Supportability & Logistic SE&I
- Ground Support Equipment SE&I
- Operations Facility Management

Materials & Processes

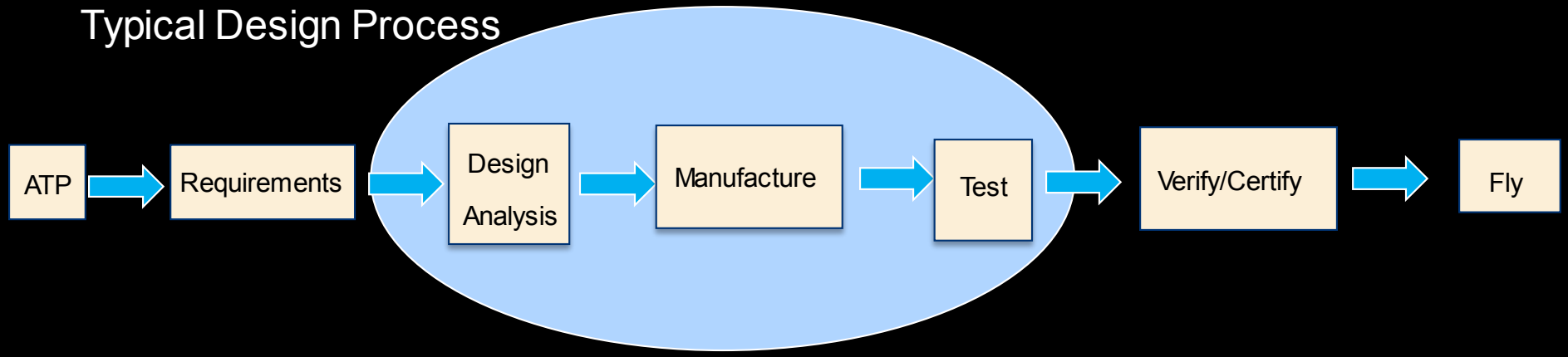
- Metallics
- Composites
- Ceramics
- Environmental Effects
- Fracture & Failure Analysis
- NDE & Tribology
- Chemistry & Combustion Research
- Materials Control& Informatics
- Advanced Manufacturing

Test Lab

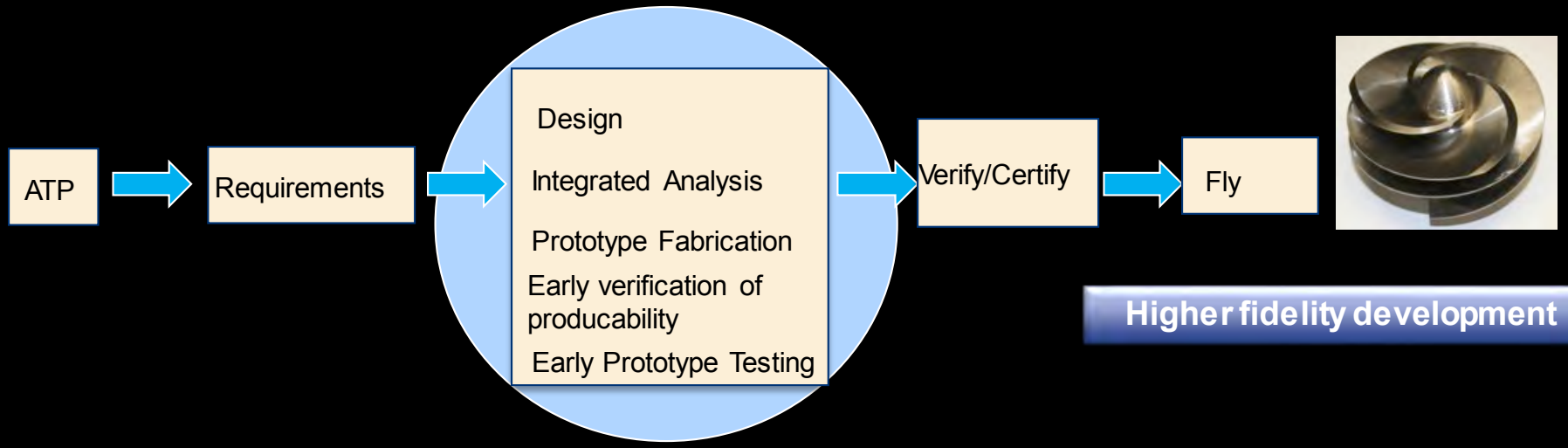
- Propulsion Testing
- Structural Testing
- Thermal Vacuum
- Shock & Vibration
- Acoustic
- Experimental Fluids Test & Development
- Test Support (Piping and Structure Design/Analysis Pressure and Propellants)

Using Technologies to Alter the Design Process

Typical Design Process

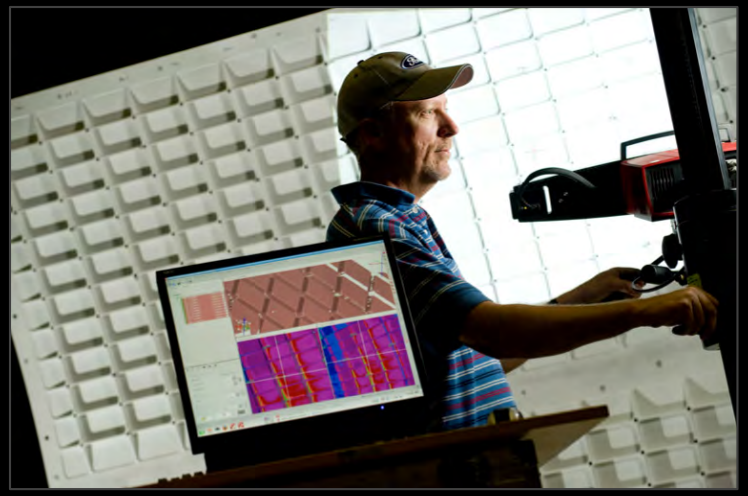


Evolved Design Process, Enabled by New Technologies



Engineering Innovates

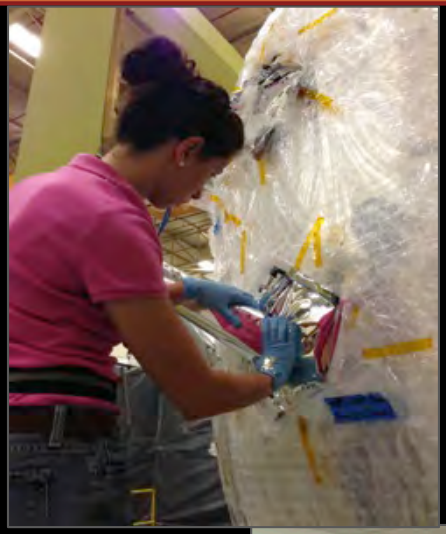
Additive Manufacturing



Structured Light Scanning

NanoLaunch 1200

Engineering's Greatest Asset: People



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Rhega Gordon

Deputy Chief Financial Officer

NASA Strategic Plan 2014

OUR MISSION
Drive advances in science, technology, aeronautics, and space exploration to enhance knowledge, education, innovation, economic vitality, and stewardship of Earth

Advance understanding of Earth and develop technologies to improve the quality of life on our home planet

Expand the frontiers of knowledge, capability, and opportunity in space

Serve the American public and accomplish our Mission by effectively managing our people, technical capabilities, and infrastructure

NASA Budget Trends ($B)

	FY13	FY14	FY15
Agency			
President's Request	17.7	17.7	17.5
Enacted ('13 w/rescission)	17.5	17.6	
(w/Sequester)	16.9		
Marshall			
President's (est. dist.)	2.2	2.2	2.1
Budget Received		2.3	
(w/Sequester)	2.3		

FY14 – Bipartisan Budget Act (Omnibus Bill) executed 1/19/14

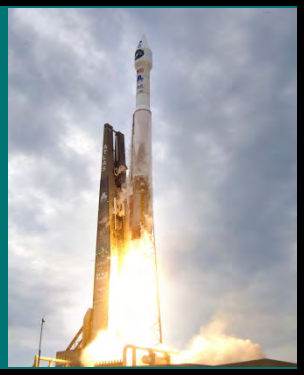
FY15 – President's release 3/4/14 – In Justification and Review

Anticipated Agency Accomplishments in FY 2015

SLS/Orion: Complete analysis of Orion's Test Flight (EFT-1) & design reviews

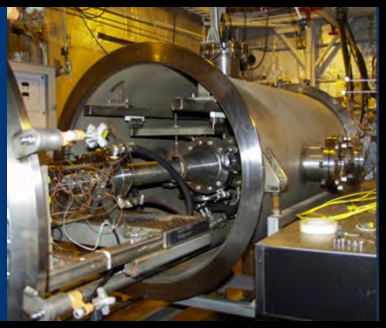
ISS: Increase utilization with science & technology payload hardware to 70 percent.

Launch 16 science and ISS cargo missions



Asteroid Redirect Mission: Hold Concept Review

Space Tech: Transform technology with several major in-space demos



JWST: Deliver primary mirror backplane and backplane support to Goddard Space Flight Center.

Commercial Crew Program: Complete first phase of certification efforts with partners.

COMMERCIAL CREW PROGRAM

National Aeronautics and Space Administration

QUESTIONS?

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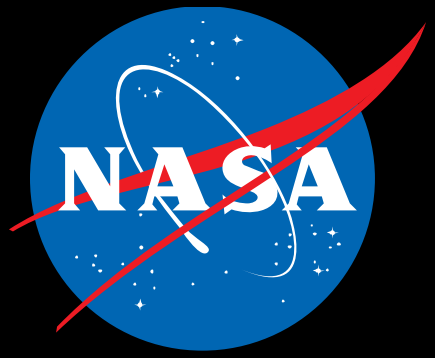
Large Business Prime Contractor of the Year

Small Business Prime Contractor of the Year

Small Business Subcontractor of the Year



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Join us for a networking reception upstairs